

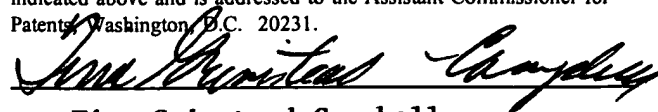
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## APPENDIX C

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Tina Grimstead-Campbell

## APPENDIX C

### Byte codes supported by the Card JVM in the preferred embodiment

AALOAD	AASTORE	ACONST_NULL
ALOAD	ALOAD_0	ALOAD_1
ALOAD_2	ALOAD_3	ARETURN
ARRAYLENGTH	ASTORE	ASTORE_0
ASTORE_1	ASTORE_2	ASTORE_3
ATHROW	BALOAD	BASTORE
CHECKCAST	DUP	DUP2
DUP2_X1	DUP2_X2	DUP_X1
DUP_X2	GETFIELD	GETSTATIC
GOTO	IADD	IALOAD
LAND	IASTORE	ICONST_0
ICONST_1	ICONST_2	ICONST_3
ICONST_4	ICONST_5	ICONST_M1
IDIV	IFEQ	IFGE
IFGT	IFLE	IFLT
IFNE	IFNONNULL	IFNULL
IF_ACMPEQ	IF_ACMPEQ	IF_ICMPEQ
IF_ICMPGE	IF_ICMPGT	IF_ICMPLE
IF_ICMPLT	IF_ICMPNE	IINC
ILOAD	ILOAD_0	ILOAD_1
ILOAD_2	ILOAD_3	IMUL
INEG	INSTANCEOF	INT2BYTE
INT2CHAR	INT2SHORT	INVOKEINTERFACE
INVOKENONVIRTUAL	INVOKESTATIC	INVOKEVIRTUAL
IOR	IREM	IRETURN
ISHL	ISHR	ISTORE
ISTORE_0	ISTORE_1	ISTORE_2
ISTORE_3	ISUB	IUSHR
IXOR	JSR	LDC1
LDC2	LOOKUPSWITCH	NEW
NEWARRAY	NOP	POP
POP2	PUTFIELD	PUTSTATIC
RET	RETURN	SALOAD
SASTORE	SIPUSH	SWAP
TABLESWITCH	BIPUSH	

## Standard Java byte codes numbers for the byte codes supported in the preferred embodiment

package util;

```
/*
 * List of actual Java Bytecodes handled by this JVM
 * ref. Lindholm and Yellin.
 *
 * Copyright (c) 1996 Schlumberger Austin Products Center,
 * Schlumberger, Austin, Texas, USA.
 */
```

```
public interface BytecodeDefn {
    public static final byte j_NOP = (byte)0;
    public static final byte ACONST_NULL = (byte)1;
    public static final byte ICONST_M1 = (byte)2;
    public static final byte ICONST_0 = (byte)3;
    public static final byte ICONST_1 = (byte)4;
    public static final byte ICONST_2 = (byte)5;
    public static final byte ICONST_3 = (byte)6;
    public static final byte ICONST_4 = (byte)7;
    public static final byte ICONST_5 = (byte)8;
    public static final byte BIPUSH = (byte)16;
    public static final byte SIPUSH = (byte)17;
    public static final byte LDC1 = (byte)18;
    public static final byte LDC2 = (byte)19;
    public static final byte ILOAD = (byte)21;
    public static final byte ALOAD = (byte)25;
    public static final byte ILOAD_0 = (byte)26;
    public static final byte ILOAD_1 = (byte)27;
    public static final byte ILOAD_2 = (byte)28;
    public static final byte ILOAD_3 = (byte)29;
    public static final byte ALOAD_0 = (byte)42;
    public static final byte ALOAD_1 = (byte)43;
    public static final byte ALOAD_2 = (byte)44;
    public static final byte ALOAD_3 = (byte)45;
    public static final byte IALOAD = (byte)46;
    public static final byte AALOAD = (byte)50;
    public static final byte BALOAD = (byte)51;
    public static final byte CALOAD = (byte)52;
    public static final byte ISTORE = (byte)54;
    public static final byte ASTORE = (byte)58;
    public static final byte ISTORE_0 = (byte)59;
    public static final byte ISTORE_1 = (byte)60;
    public static final byte ISTORE_2 = (byte)61;
    public static final byte ISTORE_3 = (byte)62;
    public static final byte ASTORE_0 = (byte)75;
    public static final byte ASTORE_1 = (byte)76;
    public static final byte ASTORE_2 = (byte)77;
    public static final byte ASTORE_3 = (byte)78;
    public static final byte IASTORE = (byte)79;
    public static final byte AASTORE = (byte)83;
    public static final byte BASTORE = (byte)84;
    public static final byte CASTORE = (byte)85;
    public static final byte POP = (byte)87;
    public static final byte POP2 = (byte)88;
    public static final byte DUP = (byte)89;
    public static final byte DUP_X1 = (byte)90;
    public static final byte DUP_X2 = (byte)91;
    public static final byte DUP2 = (byte)92;
    public static final byte DUP2_X1 = (byte)93;
    public static final byte DUP2_X2 = (byte)94;
    public static final byte SWAP = (byte)95;
    public static final byte IADD = (byte)96;
    public static final byte ISUB = (byte)100;
    public static final byte IMUL = (byte)104;
    public static final byte IDIV = (byte)108;
    public static final byte IREM = (byte)112;
```

```

public static final byte INEG = (byte)116;
public static final byte ISHL = (byte)120;
public static final byte ISHR = (byte)122;
public static final byte IUSHR = (byte)124;
public static final byte IAND = (byte)126;
public static final byte IOR = (byte)128;
public static final byte IXOR = (byte)130;
public static final byte IINC = (byte)132;
public static final byte INT2BYTE = (byte)145;
public static final byte INT2CHAR = (byte)146;
public static final byte INT2SHORT = (byte)147;
public static final byte IFEQ = (byte)153;
public static final byte IFNE = (byte)154;
public static final byte IFLT = (byte)155;
public static final byte IFGE = (byte)156;
public static final byte IFGT = (byte)157;
public static final byte IFLE = (byte)158;
public static final byte IF_ICMPEQ = (byte)159;
public static final byte IF_ICMPNE = (byte)160;
public static final byte IF_ICMPLT = (byte)161;
public static final byte IF_ICMPGE = (byte)162;
public static final byte IF_ICMPGT = (byte)163;
public static final byte IF_ICMPLE = (byte)164;
public static final byte IF_ACMPEQ = (byte)165;
public static final byte IF_ACMPLT = (byte)166;
public static final byte GOTO = (byte)167;
public static final byte j_JSR = (byte)168;
public static final byte RET = (byte)169;
public static final byte TABLESWITCH = (byte)170;
public static final byte LOOKUPSWITCH = (byte)171;
public static final byte IRETURN = (byte)172;
public static final byte ARETURN = (byte)176;
public static final byte RETURN = (byte)177;
public static final byte GETSTATIC = (byte)178;
public static final byte PUTSTATIC = (byte)179;
public static final byte GETFIELD = (byte)180;
public static final byte PUTFIELD = (byte)181;
public static final byte INVOKEVIRTUAL = (byte)182;
public static final byte INVOKENONVIRTUAL = (byte)183;
public static final byte INVOKESTATIC = (byte)184;
public static final byte INVOKEINTERFACE = (byte)185;
public static final byte NEW = (byte)187;
public static final byte NEWARRAY = (byte)188;
public static final byte ARRAYLENGTH = (byte)190;
public static final byte ATHROW = (byte)191;
public static final byte CHECKCAST = (byte)192;
public static final byte INSTANCEOF = (byte)193;
public static final byte IFNULL = (byte)198;
public static final byte IFNONNULL = (byte)199;

```